

REMARKS

Claims 1, 2, 6-8, 10, 12, 22, and 27- 29 are pending in this application. Claims 1 and 27 have been amended herein. Upon entry of this amendment, claims 1, 2, 6-8, 10, 12, 22, and 27-29 will be pending in this application. The applicant respectfully submits that no new matter has been added.

Claims 1, 2, 6-8, 10, 12, 22 and 27-29 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hamazu et al. (Patent No. 5,359,017); Buchwalter et al. (Patent No. 5,879,859); Starkey (Patent No. 5,384,339) and Green (Patent No. 4,252,592) in view of Green 4,299,938). (Office action p. 2)

Reconsideration of the rejection is respectfully requested in view of the amendments to base claims 1 and 27. The third-to-last and second-to-last clauses of claims 1 and 27 have been amended as follows:

“wherein said curing agent component is present with a proportion of 0.3 to [[1.4]] 1.0 mol per mol of said photopolymerizable resin component which can react with said curing agent component,

wherein said photopolymerization initiator component is present with a proportion of [[0.1]] 0.5 to 6.0 parts by weight per 100 parts by weight of the whole weight of the other components than the photopolymerization initiator component”

That is, the upper limit of the range of curing agent component is lowered to “1.0 mol.” Support for this amendment may be found in the specification at page 45, line 7. Similarly, the lower limit on the range of photopolymerization initiator component is raised to “0.5.” Support for this amendment may be found at page 49, line 19, of the specification.

In addition, claims 1 and 27 have been amended to delete the phrase “binary or higher.”

In the Office action, the Examiner states that the rejection is maintained for the reasons set forth in the previous Office actions, with reference to pages 3-6 of the Examiner’s answer mailed December 21, 2005, and the Decision on Appeal of May 11, 2010. Applicant notes that on page 7 of the Decision on Appeal, the Board stated that: “Applicant’s experimental evidence is not commensurate in scope with the claimed invention and, therefore, fails to establish criticality in the ranges recited in the last two clauses of claim 1.” The referred-to clauses now appear as the third-to-last and second-to-last clauses in claims 1 and 27.

Applicant submits that with the present amendment narrowing the ranges in these clauses in claims 1 and 27, the evidence is commensurate in scope with the claimed invention.

In particular, the amendment, “wherein said curing agent component is present with a proportion of 0.3 to ~~[[1.4]]~~ 1.0 mol per mol of said photopolymerizable resin component which can react with said curing agent component,” lowers the upper limit to “1.0 mol per mol.” The significance of the value “1.0 mol” is described at page 45, line 11, of the specification, as follows:

“In the case of heat curing, a proportion of the resin component to the curing agent component can stoichiometrically be decided to some extent, and if a range thereof is exceeded, it becomes difficult to obtain the cured matter having good physical properties. On the other hand, in the case of energy-ray curing, curing is advanced with the resin component alone by virtue of the photopolymerization initiator. The present invention has both characteristics of energy-ray curing and heat curing. Accordingly, if the curing agent component falls outside the range described above and is too small, the curing capacity-elevating effect which is the characteristic of the present invention (almost simultaneous progress of different curing mechanisms of energy-ray curing and heat curing caused by heat produced in the above curing and prevention of a shortage in curing) brought about by a curing mechanism other than irradiation with an energy ray is hard to be displayed. In contrast with this, if it is too large, the resin component required for energy-ray curing is relatively reduced, so that a reduction in the energy-ray

curing capacity and a reduction in the heat amount produced by curing are bought about, and the curing characteristics are reduced.”

That is, it can be determined that at least adding acid anhydride to “1.0 mol” will not prevent a good development of the curing mechanism, from the stoichiometric point of view.

Again, if the amount of adding acid anhydride to the resin to be chain cured is too large, unfavorable result that curing of the resin will stop in the state of low molecular weight molecules.

Applicant submits that this effect of the invention is fully commensurate with the claims, and is an unexpected effect of the present invention.

The lower limit in this range is not amended and remains “0.3 mol.” Applicant has demonstrated that the curing can be carried out at the lower limit of 0.3 mol in Example 8 of the specification (p. 69). Applicant submits that the evidence presented has demonstrated that the effects of the invention are seen across the claimed range of curing agent of 0.3 to 1 mol per mol of photopolymerizable resin component. That is, the effects are commensurate in scope with this numerical range.

In addition, as discussed above, claims 1 and 27 have been amended, “wherein said photopolymerization initiator component is present with a proportion of ~~[[0.1]]~~ 0.5 to 6.0 parts by weight per 100 parts by weight of the whole weight of the other components than the photopolymerization initiator component.”

The fact that 0.5 parts by weight is favorable is described at page 49, line 19. The fact that the curing can be carried out at the lower limit of 0.5 parts by weight is demonstrated by Example 3 of the specification, in which a compound of Formula IV is present at 0.5 parts. This

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example demonstrates that the effects of the present invention can be seen at this value, and Applicant submits that the effects are commensurate in scope with the claims.


Again, reconsideration of the rejection is respectfully requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicant's undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Enclosure: Petition for Extension of Time